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ABSTRACT

The document is a collection of teacher guides to sample units introducing agriculture at the primary level; part or all of the units can be used along with the regular curriculum during the school year. Intended to acquaint K-3 students with agriculture's important role, the purpose of the course is to impart basic knowledge of materials, tools, processes, concepts, and career opportunities in agriculture. Five introductory units prepare students to focus on agriculture; the guide outlines are very brief. The nine sample units on agriculture are activity-based; the teacher guides are presented in the form of brief outlines in general terms, outlining basic procedures and listing content-area skills such as reading and mathematics which may be developed in the course of the activities. Four of the nine sample units are field-trips (to an orchard, a tomato farm, a golf course, and a stadium); four others involve the planting and maintenance of school gardens (flowers from bulbs, flowers from seeds, fruit in a greenhouse, and vegetables); and the remaining sample unit teaches leaf collection and identification through a "school rake-up." A teacher evaluation form, agribusiness career information, listed teaching resources, and 10 student activity sheets are included. (AJ)

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AGRICULTURE

FOR

LITTLE PEOPLE

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EDUCATION & WELFARE
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DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL EDUCATION
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Division of Vocational Education

AGRICULTURE FOR LITTLE PEOPLE

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Vocational-Technical Curriculum Laboratory
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Building 4103 - Kilmer Campus
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This publication is one of a series of curriculum documents in career education written under the statewide curriculum development project conducted by the New Jersey Curriculum Management Center. Materials developed under this project are published by the New Jersey Vocational-Technical Education Curriculum Laboratory in order to ensure the widespread availability of these materials to practitioners in the field at a reasonable cost.

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PREFACE

The purpose of this unit is to serve as a basic guide for teachers at the K - 3 grade levels. It is hoped that this guide will stimulate the K - 3 teacher into further exercises that will encourage the study of Agriculture as a base for learning in other subject areas.

The content is centered upon the interest of students. It is basic in nature and can be adapted to meet the needs of the students.

It is hoped that this unit will provide the K - 3 teacher with a basic guide for the Introduction of Agriculture -- Career Awareness into the curriculum. The option is available for the teacher to use part or all of the units listed. More specific technical information will require research and development.

Development of other units is encouraged, and it is hoped that this guide will serve as the pilot for the experienced K - 3 teacher to implement other units in order to introduce Agriculture to their students.

IMPORTANCE OF AGRICULTURE IN NEW JERSEY

According to the Agriculture Committee of the United States House of Representatives, four out of every ten nonfarm employees in the United States hold jobs that are directly related to Agriculture. They are involved in processing, transportation, marketing, and manufacturing agricultural products or the goods farmers purchase.

In New Jersey, it is estimated that the agriculture and the food processing industry have about $1.5 billion impact annually on the state's economy.

New Jersey's million acres of farmland make a major contribution to the underground water supply. The farmland holds rainfall, and allows what is not required for the crops to filter down and replenish the underground water supplies.

Agriculture is important to the fresh air supply in New Jersey. One acre of fruit trees, wheat or corn can generate enough oxygen for six people. Thus, New Jersey's one million acres of farmland can supply enough oxygen for six million people.

In addition to the factors mentioned above, agriculture is important for New Jersey because the population appreciates its value. According to a recent Gallop Poll, 80 percent of New Jersey's nonfarm residents want to keep agriculture in the state. The reasons given were the following: production of perishable foods nearby; contributions to the state's economy; retention of taxpaying open sapce.

Agriculture is important for New Jersey. It relates to employment and the environment, and therefore would be relevant to be included into the educational system at all levels.

INTRODUCTORY STATEMENT

Each student taking this course should be able to understand the basic phases of agriculture as presented in the course in relation to their every day lives, as well as to the related careers involved.

1. Nature and scope of the course -- it should enlighten the students as to the important role that agriculture has in the society in which they live. It is the purpose of this course, therefore, to impart basic knowledge dealing with materials, tools, processes, concepts, and career opportunities in agriculture to the student.

2. Grade placement -- the course will be offered to K-3 grades as part of their regular curriculum.

3. Prerequisites -- none.

4. Length of the course -- part or all of the units can be used along with the regular curriculum during the school year.

AN APPROACH TO TEACHING AGRICULTURE AT THE K - 3 LEVEL

In planning to teach agriculture at the K - 3 level, we must consider the needs and interest of the children we are planning to teach. If the subject matter is interesting and challenging, students will want to learn. If they are motivated to learning, they will tackle the problems relating to it and thus will develop problem solving skills. Students need to have their curiosities and intellectual needs satisfied as they pursue their interests. We must also look at other underlying beliefs about children learning, and adopt our style of teaching to meet these needs.

BELIEFS ABOUT CHILDREN LEARNING

The following beliefs should be considered in planning to teach agriculture at the K - 3 level:

1. Curiosity motivates learning -- when children satisfy their curiosity they are happy, they increase their knowledge, and are eager to learn more. Curiosity can be satisfied by the teacher through a use of interest learning centers, instruction sheets, and question and answer cards.

2. Creativity -- children must have time and be free to experiment and investigate. Teachers can stimulate the children to think by allowing children to use materials for the first time and allowing them to experiment, manipulate and explore.

3. Success -- everyone wants to succeed. As a child succeeds, he develops a positive self-image. Teachers should provide children with individual interest in something at which he can succeed.

4. Individualized learning -- giving all children in a class the same assignment is unfair. The teacher should recognize individual differences, and offer alternative assignments to meet these variations.

PLAN FOR TEACHING

The unit should be the basic plan for teaching agriculture at the K - 3 level. A unit can be defined as "an organized body of contents and activities designed to facilitate student learning."

Steps in teaching the unit are as follows:

1. teacher planning
2. pupil motivation and planning
3. acquisition of information
4. comprehension of concepts, skills, and attitudes
5. presentation of the unit
6. evaluation of unit

CONCLUSION

Teaching agriculture at the primary level should be efficient and effective. It can be efficient if it does what it sets out to do. This can be checked by comparing actual child performance with the course objectives. Effectiveness can be checked by comparing the objectives with the actual jobs or vocation.

To be effective, the teacher must select appropriate objectives, and allow each child to reach them.

GENERAL OBJECTIVES

1. To develop career awareness.
2. To develop an appreciation of work attitudes and habits.
3. To develop motor skills and coordination of large and small muscles.
4. To develop safety habits.
5. To establish desirable health and habit attitudes.
6. To promote good health and physical stamina.
7. To improve speech habits.
8. To develop a positive self-image.
9. To promote self-confidence, self-control, and a sense of security.
10. To develop the ability to work and play with others.
11. To promote desirable social behavior.
12. To introduce desirable work habits.
13. To develop communication skills.
14. To promote:

observing		investigating
listening		inquiring
thinking	BY	experimenting
reasoning		discovering
		drawing conclusions
		evaluating

15. To extend the child's readiness for:

language arts	social studies
mathematics	science
writing	creative thinking and expression
reading	

16. To develop recognition of and respect for authority.
17. To promote standards of good citizenship.
18. To develop a respect for epople of all races, creeds, and economic backgrounds.

SPECIFIC OBJECTIVES

1. To acquaint students with the variety of agricultural occupations available.

2. To help students gain understanding of his own interest, abilities, and personality traits as they relate to competencies in agriculture-related occupations.

3. To have the students make a successfully finished project that will be useful and attractive.

4. The students will be able to list the major differences between individual, and production methods used in agriculture.

5. The student will be able to grow plants and flowers from seeds, cuttings or bulbs.

6. The students will have an understanding of the importance of agriculture as it relates to life.

7. The student will have an appreciation of turf maintenance.

8. The students will be able to make attractive flower arrangements.

INTRODUCTORY UNITS

Unit I

Learner Objectives

1. To understand that school, work and play are three areas of life.

Learning Activities

1. Morning Hours - City Coming to Life

2. Morning Activities
   a. Wake-up
   b. Wash
   c. Dress
   d. Eat breakfast

3. On Our Way
   a. Car
   b. Bus
   c. Train
   d. Walk

4. Where are we going?
   a. School
   b. Work
   c. Play

Learning Resources

1. Teacher
2. Students
3. Magazine pictures

Evaluation Procedures

1. Observation
2. Distinguish between pictures of people at school, work and play.

Unit II

Neighborhood Workers

Learner Objective

1. To be aware of the workers in our neighborhood.

Learning Activities

1. Workers in neighborhood
   a. milkman
   b. breadman
   c. policeman
   d. fireman
   e. mailman
   f. others

2. Importance of jobs
   a. Do they help us?
   b. Do we help them?
   c. All work is important.

Learning Resources

1. Video tape recorder
2. Discussion
3. Magazine pictures
4. Resource person

Evaluation Procedures

1. Personal observation of discussion.
2. Identify pictures of workers.
3. Explain differences in uniforms.

Unit III

Working

Learner Objective

1. To be aware of the role of the workers.

Learning Activities

1. Kinds of workers
   a. self-employed
   b. factory
   c. out-door workers

2. Conditions
   a. effects of weather
   b. seasons
   c. hours

3. Salary
   a. commission
   b. per hour rate
   c. annual salary

4. Qualities
   a. teamwork
   b. harmony

Learning Resources

1. Discussion

2. Resource person

3. Film

4. Magazine pictures

Evaluation Procedures

1. Classroom Discussion

2. Oral reports

3. Written assignment

Unit IV

Agriculture in Our Lives

Learner Objective

1. To understand that agriculuture plays an important role in our every day lives.

Learning Activities

1. Breakfast related to agriculture
   a. milk
   b. eggs
   c. bacon
   d. cereal
   e. juice
   f. others

2. Beauty of homes related to agriculture
   a. trees
   b. shrubs
   c. flowers

3. Other values
   a. careers
   b. related careers
   c. importance to environment
   d. shelter and clothing

Learning Resources

1. Charts

2. Pictures

3. Film

Evaluation Procedures

1. Observation of discussion.

2. List three important advantages of agriculture.

3. List three jobs related to agriculture.

Unit V

Careers in Agriculture

Learner Objective

1. To become aware of the jobs in agriculture and the related areas.

Learning Activities

1. How does food get from the farm to the home?
   a. processed food
   b. non-processed

2. Related occupations
   a. flower designer
   b. greenhouse worker
   c. groundskeeper
   d. landscape architect
   e. landscape gardener
   f. nursery foreman
   g. nursery worker
   h. tree pruner
   i. forester
   j. farmer
   k. seed analyst
   l. veterinarian
   m. dairyman
   n. poultryman
   o. others

Leraning Resources

1. Magazines
2. Films
3. Food samples
4. Student discussion

Evaluation Procedures

1. Oral report
2. Written report
3. Observation of discussion

UNIT ACTIVITIES

1. Visit to Apple Orchard -- pick, eat and plant seeds.
2. Visit to Tomato Farm -- follow tomatoes from farm to industry
3. School Rake-Up -- leaf collection, use, and identification.
4. Planting Sessions -- around school and community.
5. Eat and Seed Days -- eat fruit in school and plant seeds.
6. Flower Growing and Arranging.
7. Development of Fruit and Vegetable Garden -- farm land adjacent to school.
8. Visit Golf Course -- play golf and learn values of grass.
9. Visit Stadium -- watch game, learn astro turf maintenance procedures after game.
10. Career Awareness -- in which the students will gain knowledge about the range and nature of various careers, including their educational and personal requirements, will be an essential part of the above units.

VISIT TO
APPLE ORCHARD

VISIT TO APPLE ORCHARD

SAMPLE UNIT

DESCRIPTION

Basic Procedures:

1. Visit site.
2. Pick apples -- study effects of air pollution on trees and fruit.
3. Basket apples.
4. Load apples.
5. Discuss what to do with apples.
6. Observe how the farmer performs the same operation.
7. Return to school with apples.
8. Eat apples and save seeds.
9. Plant seeds in portable greenhouses.
10. Supervise growth of trees while moving on to other units.

TOPICS

1. Learn transportation -- How shall we go?
   a. air
   b. bus
   c. taxi
   d. train
   e. walk
   f. other
2. Mathematics
   a. estimate how much it will cost.
   b. how long will the trip take?
3. Science
   a. Directions -- north, south, east and west
   b. Weather --
      1. local paper
      2. dial weather
      3. farmers almanac
      4. radio and TV
      5. calendar

4. Reading
   a. map reading
   b. road signs

5. Physical education
   a. planned activity at orchard site.

6. History
   a. history of county
   b. history of apples

7. Spelling
   a. apple
   b. core
   c. seed
   d. farmer

8. Writing
   a. notebook
   b. reports
   c. instructions

9. Career awareness
   a. transportation careers
      1. pilot
      2. stewardess
      3. bus driver
      4. cab driver
      5. train engineer

   b. communication careers
      1. newspaper
      2. weather
      3. radio and television

   c. agriculture careers
      1. farmer
      2. farm machinery
      3. packaging
      4. sales

VISIT TO A
TOMATO FARM

VISIT TO TOMATO FARM

SAMPLE UNIT

DESCRIPTION

Basic Procedures:

1. Visit farm.
2. Pick tomatoes.
3. Basket tomatoes.
4. Load.
5. Discuss what to do with tomatoes.
6. Observe how farmer performs the same operations.
7. Visit Campbell Soup Company -- observe how tomatoes arrive.
8. Observe what is done with tomatoes.
9. Return to school with tomato soup can.
10. Prepare soup to eat in school.
11. Art work with labels.
12. Crafts with cans.
13. Discuss what can be done with tops.

TOPICS

1. Transportation
   a. how do we schedule a bus?
   b. who do we call?
   c. jobs at the bus terminal.
   d. who will drive the bus?

2. Mathematics
   a. average number of tomatoes per basket.
   b. cost per pound.
   c. records.

3. Science
   a. what makes the plants grow?
   b. when should they be picked?
   c. how to seed?

4. Reading
   a. directions on soup label.
   b. trip agenda.

5. Physical education
   a. planned at site.

6. History
   a. history of tomatoes
   b. related history

7. Spelling
   a. company
   b. tomato
   c. leaf
   d. seed
   e. stem

8. Writing
   a. notebook
   b. reports
   c. instructions

9. Career awareness
   a. transportation careers
   b. production careers
   c. sales careers

SCHOOL RAKE UP-
LEAF COLLECTION
AND
IDENTIFICATION

SCHOOL RAKE-UP -- LEAF COLLECTION AND IDENTIFICATION

SAMPLE UNIT

DESCRIPTION

Basic Procedures:

1. Rake-up leaves around school.
2. Possibly extend rake-up services to older persons' homes adjacent to school.
3. Discuss what to do with leaves.
4. Collect and identify leaves from piles.
5. Call Borough Hall to schedule "The Leaf Eater" to visit the school.
6. Discuss other uses of leaves:
   a. ground cover
   b. mulch
   c. art

TOPICS

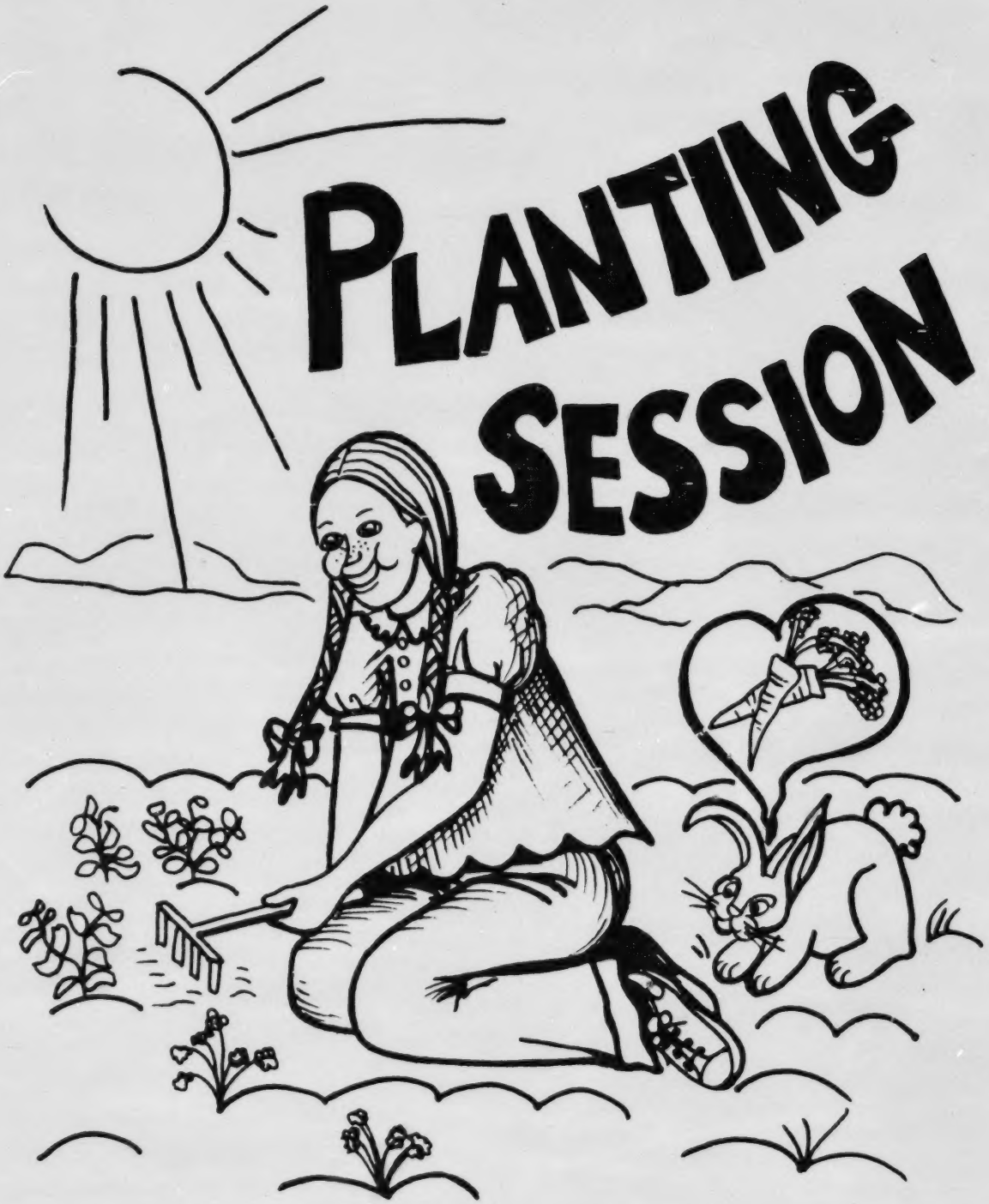
1. Tools and equipment necessary.
   a. how shall we get it?
   b. how much does it cost?
   c. different types.
2. Mathematics
   a. if salaries were paid, estimate how much the job would cost.
   b. estimate cost of tools.
   c. estimate cost of equipment needed.
3. Science
   a. leaf identification.
   b. why do leaves fall?
   c. parts of a leaf.
   d. why are leaves necessary?
   e. importance to other plants.
4. Reading
   a. catalogues for tools and equipment.
   b. types of various leaves.
5. Physical education
   a. planned activity

6. History
   a. history of tools and equipment
   b. related history

7. Spelling
   a. leaf
   b. tree
   c. rake
   d. leaves
   e. other related words

8. Writing
   a. notebook
   b. reports
   c. instruction

9. Career awareness
   a. service careers
   b. agriculture career
   c. equipment maintenance


PLANTING
SESSION

PLANTING SESSIONS -- AROUND SCHOOL AND COMMUNITY

SAMPLE UNIT

DESCRIPTION

Basic Procedures:

1. Survey garden plots.
2. Rake and prepare surface.
3. Measure distances.
4. Plant seeds, bulbs or small plants.
5. Continue with periodic maintenance.

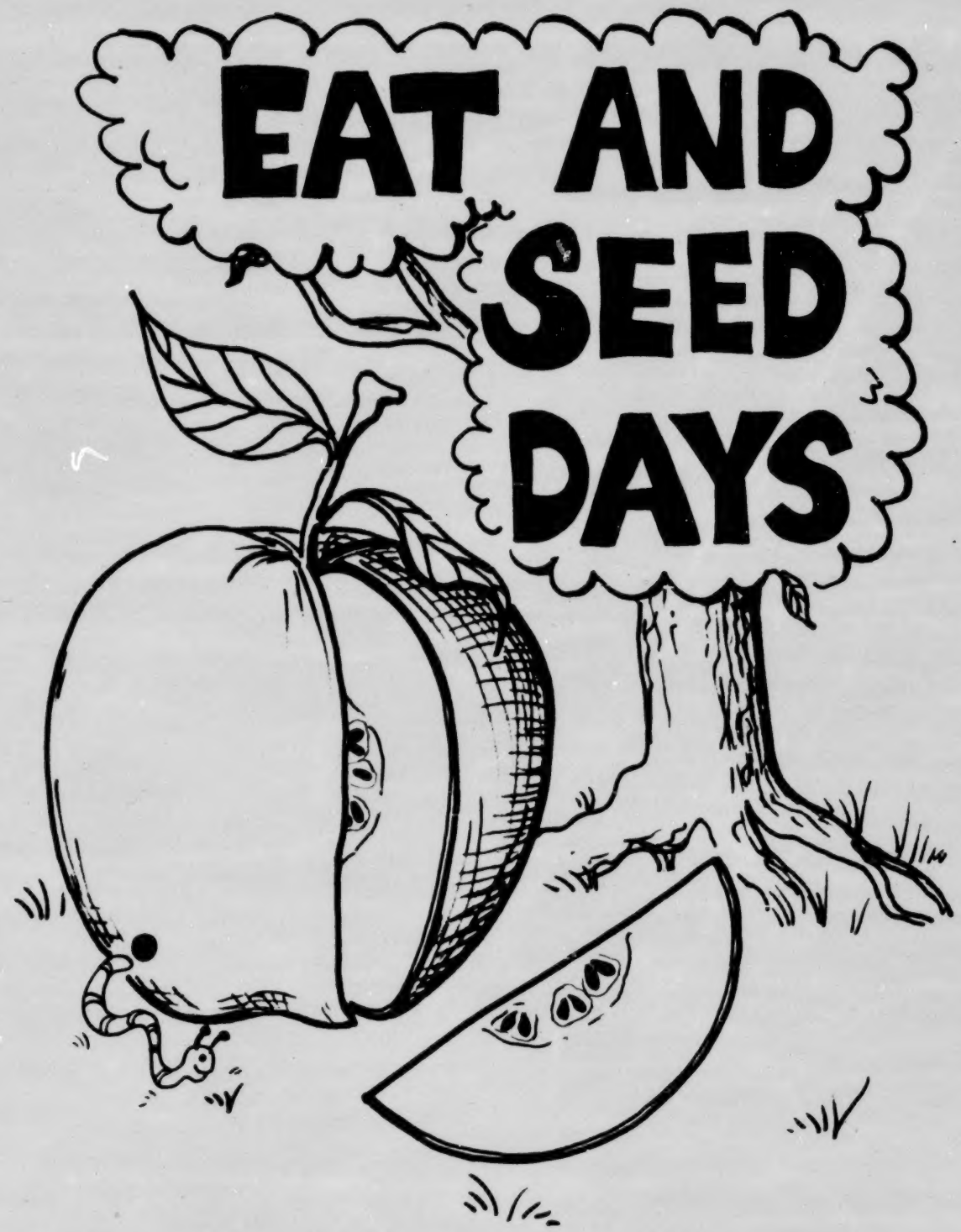
TOPICS

1. Problem solve
   a. where to place plants, seeds or bulbs.
   b. how many do we need?
   c. how much will they cost?
   d. when will we start the job?
   e. what type of plants are best for the season?
2. Mathematics
   a. number of plants.
   b. measurements.
   c. basic survey methods.
3. Science
   a. plant science
   b. related items.
4. Reading
   a. directions
   b. stories about seeds and plants.
5. Physical education
   a. planned at site.
6. History
   a. related to topic
   b. related to location and season.

7. Spelling
   a. plant
   b. seed
   c. bulb
   d. dig
   e. fertilizer

8. Writing
   a. notebook
   b. worksheets
   c. reports

9. Career awareness
   a. ground maintenance
   b. architectural
   c. public service


EAT AND
SEED
DAYS

EAT AND SEED DAYS

EAT FRUIT IN SCHOOL AND PLANT SEEDS

SAMPLE UNIT

DESCRIPTION

During these sessions, the children will eat the fruit in school and save the seeds. The seeds will then be planted in portable greenhouses. Periodic maintenance and recording of progress will be made.

Basic Procedures:

1. Serve fruit
   a. discuss shape
   b. sizes
   c. color
   d. texture
   e. types -- watermelon, peaches, apples, etc.
2. Slice fruit
   a. half
   b. quarters
   c. other sizes
3. Fruit
   a. eat fruit
4. Save seeds
5. Plant seeds
6. Follow-up
   a. water
   b. progress reports

TOPICS

1. Fruit
   a. definition
   b. examples
   c. where are they grown?

2. Mathematics
   a. sizes
   b. shapes
   c. concepts of whole, half, quarters, etc.

3. Science
   a. fruit identification
   b. seed identification
   c. temperatures needed for growth

4. Reading
   a. stories related to fruit.
   b. Johnny Appleseed.
   c. related stories.

5. Physical education
   a. planned activity at school site.

6. Spelling
   a. fruit
   b. seed
   c. shape
   d. color
   e. names of various fruits

7. Writing
   a. notebook
   b. reports
   c. identification signs

8. Related material
   a. show various films on fruit growth and production.

9. Career awareness
   a. distributive education
   b. sales
   c. management
   d. produce

FLOWER
GROWING
AND
ARRANGING

FLOWER GROWING AND ARRANGING

SAMPLE UNIT

DESCRIPTION

The students will bring in various flowers from home, and learn flower arrangement. Students will plant seeds and grow their own flowers, and arrangements with artificial flowers will also be learned.

Basic Procedures:

1. Plant seeds
   a. select type of flower
   b. identify seeds.
2. Maintain and record progress.
3. Bring in flowers from home.
4. Use of artificial flowers.
5. Arrangement of flowers.

TOPICS

1. Flowers
   a. types
   b. purposes for use
2. Arrangements
   a. types
   b. related arrangements
3. Mathematics
   a. measurement
   b. estimating
   c. shapes
4. Science
   a. plant and flower identification.
   b. controlling growth of flowers.
   c. controlling size of flowers.
5. Reading
   a. directions for planting.
   b. directions for arrangements.
   c. directions for daily maintenance.

6. Spelling
   a. flower
   b. plant
   c. cut
   d. water

7. Writing
   a. rules and regulations
   b. notebooks
   c. reports

8. Related material
   a. films on flower arrangement.
   b. visit to florist.
   c. discussion of various related careers.

9. Career awareness
   a. florist
   b. nursery
   c. sales

DEVELOPMENT OF FRUIT AND VEGETABLE GARDEN

DEVELOPMENT OF FRUIT AND VEGETABLE GARDEN

SAMPLE UNIT

DESCRIPTION

A garden will be started with the hopes that the children will take the knowledge home and start gardens of thier own near their homes.

Basic Procedures:

1. Select location
2. Plot garden
3. Determine what will be planted
4. Purchase plants and seeds
5. Rake-up ground
6. Plow soil
7. Smooth surface
8. Plant seeds and plants
9. Mark rows for identification
10. Periodic maintenance
11. Weed
12. Record progress of garden

TOPICS

1. Gardens
   a. types
   b. purposes
   c. need
2. Survey plot
   a. slope of ground.
   b. type of soil.
   c. reasons for ground preparation.

3. Mathematics
   a. measurement
   b. distances
   c. depth, width, and length

4. Science
   a. weather
   b. climate

5. Reading
   a. directions for preparing garden.
   b. directions for planting.
   c. directions on seed packages.

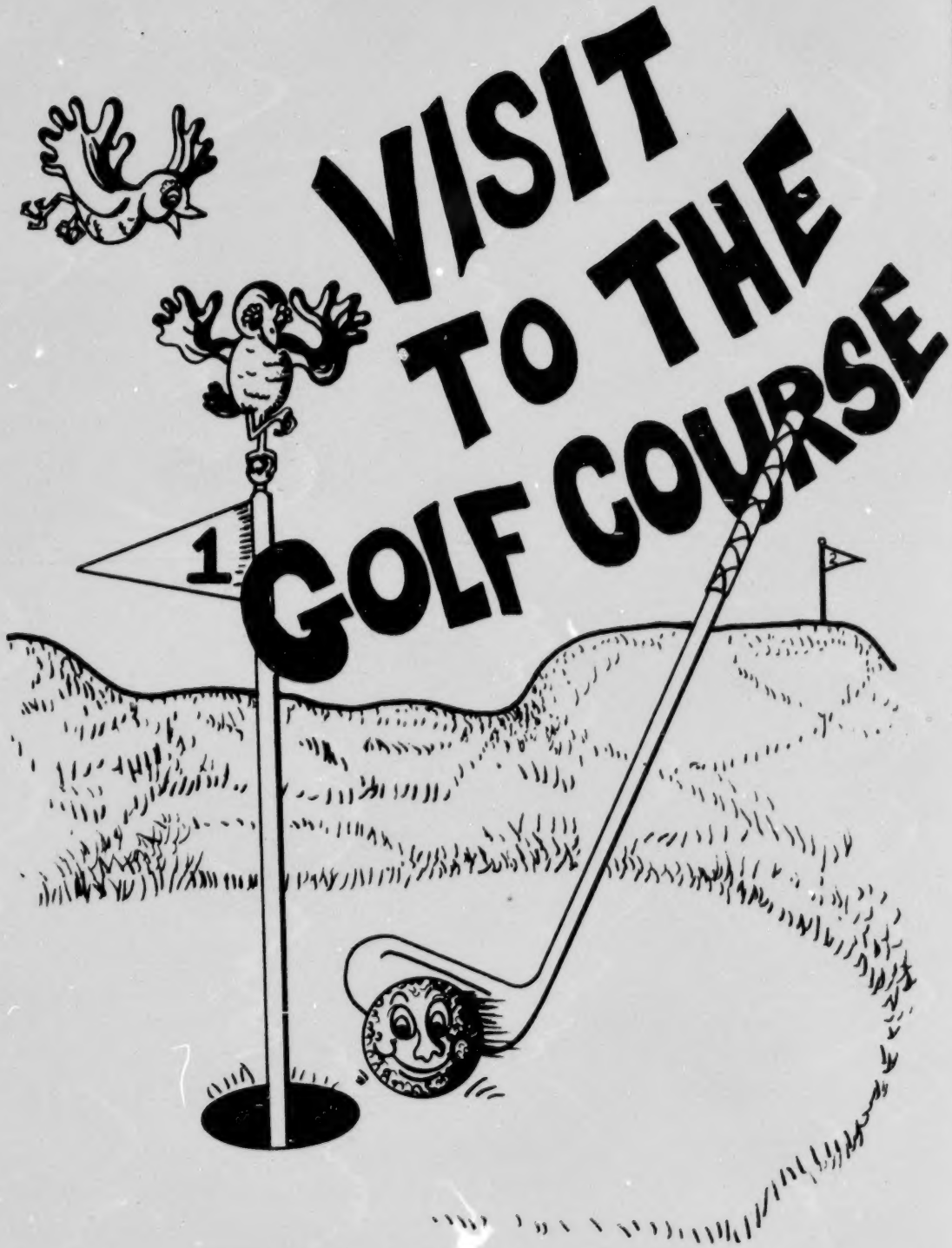
6. History
   a. who used gardens in the past?
   b. where did they get the seed?
   c. related information.

7. Spelling
   a. garden
   b. rows
   c. plow
   d. dig

8. Writing
   a. notebook
   b. reports
   c. garden description

9. Related information
   a. visit other gardens in neighborhood
   b. visit garden farms
   c. films on subject

10. Career awareness
    a. environmental
    b. agriculture
    c. natural resources


VISIT
TO THE
GOLF COURSE
1

VISIT GOLF COURSE

PLAY GOLF AND STUDY TURF MAINTENANCE

SAMPLE UNIT

DESCRIPTION

This unit will introduce turf maintenance to the students. The need for and some of the reasons for good turf maintenance will be examined.

Basic Procedures:

1. Play golf.
2. Discuss type of grass played on.
3. Difference between rough and greens.
4. How is grass kept in proper condition.
5. Sand traps
   a. purpose
   b. maintenance
6. Equipment used.
7. Watering systems.
8. Careers available around golf course.

TOPICS

1. Physical education
   a. golf game
   b. equipment
2. Mathematics
   a. measure distance that balls are hit.
   b. estimate distances.
   c. determine distance to hole.
3. Science
   a. weather
   b. climate
   c. cloud condition
   d. effects on air pollution
   e. home for wild life

4. Reading
   a. procedures
   b. instructions
   c. follow-up reports

5. Spelling
   a. golf
   b. grass
   c. turf
   d. cut
   e. ball

6. Writing
   a. notebook
   b. reports
   c. score cards

7. Related
   a. golf course careers
   b. maintenance equipment
   c. pro-shop

8. History
   a. background of game
   b. history of golf course
   c. historical significance within country.

9. Career awareness
   a. professional golf
   b. maintenance
   c. sporting goods sales

STADIUM
VISITATION

STADIUM VISITATION

ASTRO TURF MAINTENANCE PROCEDURES

SAMPLE UNIT

DESCRIPTION

Students will watch a game and afterwards go down to the field and learn about astro turf maintenance, and other related information.

Basic Procedures:

1. Observe game and beauty of grass.
2. After game go onto field and examine grass.
3. Observe grass maintenance procedures.
4. Discuss advantages and disadvantages.
5. Discuss related careers within the stadium.

TOPICS

1. Astro turf maintenance
   a. snow, rain, and sun effects
2. Mathematics
   a. size
   b. length of ball park
   c. measurements
   d. shape
3. Science
   a. related to stadium
   b. air currents
4. Reading
   a. score cards
   b. score board
5. Physical education
   a. planned activity at stadium

6. History
   a. history of sport.
   b. history of stadium.
   c. history behind game.
   d. related information.

7. Spelling
   a. baseball
   b. bases
   c. bat
   d. glove
   e. hot dog
   f. soda

8. Related information
   a. physical layout of stadium
   b. facilities
   c. realted careers

9. Career awareness
   a. sales
   b. service
   c. communication
   d. sports (professional)
   e. maintenance

METHODS OF INSTRUCTION

1. Lecture
   a. by teacher
   b. student reports
   c. guest speaker

2. Demonstration
   a. by teacher
   b. by student
   c. guest speaker

3. Discussion
   a. teacher directed
   b. class groups

4. Visual aid presentation
   a. films
   b. overhead projector
   c. chalkboard
   d. display charts

5. Field trip

6. Student workbook lesson questions

DESCRIPTION OF CLASSROOM

The course can be taught in the regular classroom. Provisions for adequate storage for supplies and equipment should be made.

SUPPLIES AND MINOR EQUIPMENT

paring knives

electric portable greenhouses

construction paper

tape

tape rulers

pens, pencils, etc.

seeds

water cans

hoses

rakes

hoes

shovels

hand tools

weed killer

fertilizer

notebooks, paper

artificial flowers

planting boxes and pots

paper plates, cups, forks, etc.

plants

MAJOR EQUIPMENT

work bench

storage cabinet

book shelves

chalkboard

student desks

overhead projector

projection screen

16mm movie projector

outside storage shed

TEACHER EVALUATION

To be filled out before and after course is taught.

Directions:

On the scale to the right of the following items, circle the value rating that would indicate how you felt the aim was net. Note: 1 being weak, 5 being strong.

Weak 1 2 3 4 5 Strong

Course Aims

1.	Development of career awareness.	1	2	3	4	5
2.	Development of appreciation of work attitudes and habits.	1	2	3	4	5
3.	Development of safety habits.	1	2	3	4	5
4.	Establishment of desirable health and habit attitudes.	1	2	3	4	5
5.	Promotion of good health and physical stamina.	1	2	3	4	5
6.	Improvement of speech habits.	1	2	3	4	5
7.	Development of motor skills and coordination of large and small muscles.	1	2	3	4	5
8.	Development of a positive self-image.	1	2	3	4	5
9.	Promotion of self-confidence, self-control, and sense of security.	1	2	3	4	5
10.	Development of the ability to work and play with others.	1	2	3	4	5
11.	Introduction of desirable work habits.	1	2	3	4	5
12.	Promotion of desirable social behavior.	1	2	3	4	5
13.	Development of communication skills.	1	2	3	4	5
14.	Promotion of observation, listening, reasoning, and thinking skills.	1	2	3	4	5
15.	Extension of the child/s readiness for: agriculture, language arts, math, transportation, writing.	1	2	3	4	5

16.	Development of recognition of and respect for authority.	1	2	3	4	5
17.	Promotion of standards of good citizenship.	1	2	3	4	5
18.	Development of a respect for people of all backgrounds -- ethnic and economic.	1	2	3	4	5
	TOTALS	—	—	—	—	—

COURSE OBJECTIVES

1.	To acquaint students with the variety of agriculture occupations available once they complete school.	1	2	3	4	5
2.	To inform students of agriculture career opportunities available to them with preparation beyond high school.	1	2	3	4	5
3.	To help students gain understanding of his own interest, abilities, and personality traits as they relate to competencies in agricultural related occupations.	1	2	3	4	5
4.	To have the students make a successfully finished project that will be useful and attractive.	1	2	3	4	5
5.	The students will be able to list the major differences between individual, and production methods used in agriculture.	1	2	3	4	5
6.	The student will be able to grow plants and flowers from seeds, cuttings or bulbs.	1	2	3	4	5
7.	The students will have an understanding of the importance of agriculture as related to life.	1	2	3	4	5
8.	The student will have an appreciation of turf maintenance.	1	2	3	4	5
9.	The students will be able to make attractive flower arrangements.	1	2	3	4	5
10.	The student will become aware of various career opportunities in agriculture.	1	2	3	4	5

UNIT OBJECTIVES

1. To understand that school, work and play are three areas of life.	1	2	3	4	5
2. To be aware of the workers in our neighborhood.	1	2	3	4	5
3. To be aware of the role of the workers.	1	2	3	4	5
4. To understand that agriculture plays an important role in our every day lives.	1	2	3	4	5
5. To become aware of the jobs in agriculture and the related areas.	1	2	3	4	5

REFERENCES

Books containing projects, drawing problems, or other related activities suitable for teaching the manipulative instruction of agriculture.

1. Drawbaugh, Charles C. and William L. Hull. AGRICULTURAL EDUCATION: APPROACHES TO TEACHING AND LEARNING. Charles E. Merrill Publishing Company, Columbus, Ohio. 1970. 324 pages.

2. Hamilton, G. H. et al. HORTICULTURE FOR PROFIT AND PLEASURE. J. M. Dent and Sons, 100 Scarsdale Road, Don Mills, Ontario, Canada. 1969. 396 pages.

3. Hoover, Norman K. APPROVED PRACTICES IN BEAUTIFYING THE HOME GROUNDS. Interstate Printers and Publishers, Danville Illinois, 1965. 271 pages.

4. NEW JERSEY MANPOWER NEEDS IN NATURAL RESOURCES AND/OR AGRICULTURE. Cooperative Research Project No. 5427, Rutgers University, New Brunswick, New Jersey. 1972.

5. Mager, Robert F. DEVELOPING VOCATIONAL INSTRUCTION. Fearon Publishers, Palo Alto, California. 1967.

6. Gambino, Thomas W. GRASS ROOTS: DEVELOPMENT OF CURRICULUM FOR CAREER EDUCATION, special apper, November, 1972, Bureau of Occupational Research Development, N. J. Division of Vocational Education, Trenton, New Jersey.

7. Dreves, Fred J. BASIC PRINCIPLES OF TECHNOLOGY FOR CHILDREN. Special paper, October, 1973, Bureau of Occupational Research Development, New Jersey, Division of Vocational Education, Trenton, New Jersey.

8. Blough, Glenn. ELEMENTARY SCHOOL SCIENCE. Holt, Rinehart and Winston, New York, 1964.

*CAREER INFORMATION RESOURCES -- AGRIBUSINESS

JOB FAMILIES

Research
Forestry
Land and Water Management
Fisheries and Wildlife
Mining and Quarrying
Petroleum and Related Products
Productive Agriculture
Processing and Marketing
Services

*This material is excerpted from the HANDBOOK OF CAREER INFORMATION RESOURCES available from the New Jersey Vocational-Technical Curriculum Laboratory

Regulatory - U. S. Department of Agriculture

Food and Drug Inspector
Agriculture Commodity Grader(Horticultural Inspector)
Agricultural Commodity Grader (Animal)
Plant and Animal Quarantine Inspector
Check Viewer
Mineral Inspector, Slate

Conservation

Soil Conservationist
Range Conservationist
Soil Scientist
Engineer, Agriculture
Plant Materials Technician
Agronomist
Biologist
Woodland Conservationist
Geologist
Agriculture Economist
Conservation Aide
Engineering Aide

Education

County Agricultural Agent
District Agricultural Agent
Specialist, Extension Service
Vocational Agriculture Teacher
Instructor, College of Agriculture

Research

Agriculture Economist
Agriculture Statistician
Agronomist
Biochemist
Biologist
Biophysicist
Economic Botanist
Plant Ecologist
Plant Taxonomist
Dairy Technologist
Engineer, Agriculture
Entomologist
Extension Specialist
Geologist
Geophysicist

Geneticist (Animal or Plant Breeder)
Horticulturist
Horticultural Products Specialist
Olericulturist
Ornamental Horticulture
Floriculturist
Arboriculturist
Pomologist
Market Analyst
Nutritionist
Pathologist
Research Director
Soil Scientist
Zoologist
Agricultural Aide
Agricultural Engineering Technician
Biological Aide
Feed Research Aide

Forestry

Forester
Forest Ecologist
Wood Technologist
Forester Aide
Fire Look Out
Forest Fire Fighter
Suppression - Crew Leader
Logger

Land and Water Management

Range Conservationist
Geologist
Engineer, Mining
Engineer, Agricultural
Surveyors
Engineer, Electrical
Engineer, Mechanical
Park Recreationist
Park Ranger
Park Naturalist
Park Superintendent
Irrigation Engineer
Reservoir Manager
Power Plant Operator

Fisheries and Wildlife

Fish and Wildlife Specialist
Fish Culturist
Game Farmer
Fish Farmer
Gamekeeper

Hatchery Man, Fish
Fish and Game Warden
Hunting and Fishing Guide
Predatory Animal Hunter
Trapper
Bird Trapper

Mining and Quarrying

Mining Engineer
Mining Draftsman
Gravity - Meter - Observer
Mines Safety Engineer
Mine Superintendent
Coal Inspector
Mine Foreman
Fire Boss
Machinery Operators, Mining Equipment
Miner
Quarryman
Stone Grader
Crusher Setter
Cobbler
Dispatcher
Coal Washer

Petroleum and Related Products

Geologist
Petroleum Engineer
Geophysicists
Seismograph Man
Superintendent, Drilling and Production
Tool Pusher
Driller
Rotary-Driller Helper
Mud-Plant Operator
Performer Operator
Pumper

Productive Agriculture

Poultryman
Poultry Breeder
Poultry Farmer
Dairyman
Orchardist
Farmer (Animal, Cash Grain, Crop Specialty)
Cattle Rancher
Cattle Farmer
Beekeeper
Sheep Farmer

Sheep Herder
Horse Breeder
Power Farm Machinery Operator
Farmhand
Farm Couple
Nurseryman
Nursery Worker
Tree Surgeon
Horseshoes
Animal Caretaker
Irrigator

Processing and Marketing

Broker
Sorter
Fruit Buying Grader
Cotton Classer
Ginner
Compress Operator
Superintendent, Grain Elevator
Drier Operator
Commission Man, Livestock
Auctioneer
Grader, Meat
Dairy Tester
Egg Candler

Service

Hatcherman
Foreman, Egg Room
Poultry, Technical Advisor
Poultry Technician
Chicken Sexer
Poultry Vaccinator
Blood Tester
Feed Miser
Field Contact Man
Artificial Breeding Technician
Artificial Inseminator
Dairy Tester
Representative, Breed Associations
Veterinarian
Laboratory Technician, Veterinary
Salesman
Farm Machine Set-Up Man
Farm Equipment Mechanic
Tractor Mechanic
Seed Grower
Seed Analyst

Harvest Contractor
Scout (Pest Control)
Blight Control Foreman
Fumigator
Airplane Pilot, Agriculture
Weed Inspector
Feed Store Operator
Farm Implement Dealer
Cooperative Wholesale Supplier
Landscape Architect
Landscape Gardener
Soils Tester
Editor, Farm Magazine
Reporter, Farm Magazine
Radio Farm Director

RESOURCES

AIDS

Royal Petroleum Corporation Cliff Road, Sewaren, N.J. 07077	Samples of fuel oils available

FILMS

American Gas Association Public Relations Department 605 Third Avenue New York, New York 10016	"The Constant Search" - 20 min. "Involvement" - 12¼ min. "Liquefied Natural Gas" - 13½ min. (Above films 16mm color sound)
Association Films, Inc. 600 Madison Avenue New York, New York 10022	S-375 "The Power of Cold" - 9 min. S-843 "Copper!" - 37 min. S-919 "Niagara Frontier" - 20 min. S-942 "Turf Care" - 17 min. (Above films 16mm color sound)
Film Library Ford Motor Company 16 East 52nd Street New York, New York 10022	"The American Farmer" -mechanized 16mm color sound - 28 minutes
Jim Handy Productions Division of T.T.P. Corp. 2821 East Grand Blvd. Detroit, Michigan 48211	"American Harvest" 16 mm color - 30 min.
Maine Dept. of Agriculture Mr. Kenneth E. Gray, Chief Motion Picture Services State House Augusta, Maine 04330	"Part-Time Farmer" Color, 17 min.

Nat'l Association of Manufacturers
277 Park Avenue
New York, New York 10017

391 "Quest for Oil" (Petroleum industry) - 13½ min.

392 "Farm to Factory" (Produce that becomes products) - 13½ min.

405 "Power in the Yard" (Power units, tractors, etc.) - 13½ min.

460 "Food for the Future" (Meeting needs of growing population) - 13½ min.

460 "Selecting the Champion" (Research behind transformation of wild rose into wide range of colorful cultivated varieties) - 13½ min.

464 "Big Little Businessmen" (fuel oil dealer)- 13½ min.

"The Atom Shufflers" (Strides in production of synthetic rubbers) - 13½ min.

New Holland--Div. of
Sperry Rand Corporation
7230 Morgan Road, Box 10
Liverpool, New York 13088

"Seed Time and Harvest"

"Combine Demonstration Film"

"Food, Famine & Farmer Brown"
16mm color sound - 13½ min.

"Farming's Fabulous Future"
16mm color sound - 12½ min.

"Story of Baler Twine"
16mm color sound - 17 min.

"The Better Half of Farming"
16mm color sound - 12½ min.

Ohio State University
College of Agriculture and
Home Economics
2120 Fyffe Road
Columbus, Ohio 43210

"Farming's Fabulous Future"- 17 min.

Texaco, Inc.
Manager, Retail Sales
864 West Peachtree Street, N.W.
Atlanta, Georgia 30308

"County Agent" - color, 27 min.

Texaco, Inc.
Manager, Retail Sales
864 West Peachtree Street NW
Atlanta, Georgia

"Your Career in Agriculture"

C. L. Venard
Film Distribution Service
Peoria, Illinois 61602

"Livestock Production"
16mm color - 27 min.

"The All American Horse"
16mm color - 27½ min.

FILMS AND PAMPHLETS

U.S. Dept. of Agriculture
Soil Conservation Service
1380 Hamilton Street
Somerset, N.J. 08873

Films & pamphlets covering every facet of agriculture and conservation, some available in quantity

ORGANIZATIONS

American Association of Nurserymen
835 Southern Building
Washington, D.C. 20005

American Horticultural Society
1600 Blandenburg,
Washington, D.C.

American Meat Institute
59 East Van Buren Street
Chicago, Illinois

American Petroleum Institute
1271 Avenue of the Americas
New York, New York 10020

American Society of Agricultural Engineers
420 Main Street
St. Joseph, Michigan

American Society of Agronomy
677 South Segoe Road
Madison, Wisconsin

American Society of Foresters
704 Seventeenth Street, N.W.
Washington, D.C. 20036

American Society of Zoologists
Williams College
Williamstown, Massachusetts

American Institute of Biological Sciences
200 P Street, N.W.
Washington, D.C. 20036

Botanical Society of America
Department of Botany
University of Texas
Austin, Texas 78712

Botanical Society of America
Dr. Richard C. Starr, Secretary
Department of Botany
Indiana University
Bloomington, Indiana 47405

Farm Equipment Institute
608 South Dearborn Street
Chicago, Illinois

National Coal Association
1130 17th Street, N.W.
Washington, D.C. 20036

National Lumber Manufacturers Association
1619 Massachusetts Avenue, N.W.
Washington, D.C. 20036

Ohio Department of Mines
State Office Building
65 South Front Street
Columbus, Ohio

Society of American Crop Science
677 South Sego Road
Madison, Wisconsin 53711

Society of American Foresters
704 17th Street, N.W.
Washington, D.C. 20036

PAMPHLETS

American Camping Association Bradford Woods Martinsville, Indiana 46151	Careers in Camping
American Forest Institute 1835 K Street Northwest Washington, D.C. 20006	This is a Tree Country
American Forest Products Industries, Inc. 1816 N Street, N.W. Washington, D.C. 20036	It's a Tree Country
American Forestry Association 919 17th Street, N.W. Washington, D.C. 20006	So You Want to be a Forester You Can Be a Conservationist
American Geophysical Union 2100 Pennsylvania Ave. N.W. Washington, D.C. 20037	Information Concerning Geophysics
American Nat'l Cattlemen's Association Curriculum Materials Department 1540 Emerson Street Denver, Colorado 80218	The Young Cattlemen
American Petroleum Institute Washington, D.C.	Going Places In Oil
American Society for Horticultural Science P.O. Box 109 St. Joseph, Michigan 49085	Horticulture - a Rewarding Career
American Society of Agricultural Engineers St. Joseph, Michigan 49085	Agricultural Engineering
American Society of Agronomy 677 South Segol Road Madison, Wisconsin 53711	Careers in Agronomy - Crop Science and Soil Science
American Society of Landscape Architects 2013 Eye Street, N.W. Washington, D.C. 20006	Landscape Architect and Land Planning

American Society of Range Management 2120 South Birch Street Denver, Colorado 80222	Career Opportunities in Rangeland and Resource Management
Botanical Society of America Office of the Secretary Botany Department Rutgers University New Brunswick, N. J. 08903	Botany as a Profession
Entomological Society of America 4603 Calvert Road College Park, Maryland 20740	Entomology - An Exciting Scientific Career
Future Farmer's Supply Service Alexandria, Virginia 22306	Agriculture - More Than Farming Careers Unlimited
Gemological Institute of America Registrar's Office 11940 San Vincente Boulevard Los Angeles, Calif. 90049	Gemology as a Career
Hess Oil and Chemical Corp. 1 Hess Plaza Woodbridge, N.J. 07095	Materials available from company
Illinois Department of Conservation 400 S. Spring Street Springfield, Illinois 62706	Careers in Wildlife Conservation
International Sales & Marketing Executives 630 3rd Avenue New York, New York 10017	Your Farm Background and Agri-Business Selling
Mississippi Employment Security Commission P.O. Box 1699 Jackson, Mississippi	Should You Go into Agriculture? Should You Go into the Mineral Industry?
National Coal Association Education Division 1130 17th Street, N.W. Washington, D.C. 20036	Engineering Careers in the Coal Industry
National Forest Products Association 1619 Massachusetts Avenue, N.W. Washington, D.C. 20036	Challenge of the Forest Opportunities Unlimited for Careers of Prestige and Profit in the Forest Products Industries Information on wood industry careers and forest products industries

The National Future Farmer P.O. Box 15130 Alexandria, Virginia 22309	Agri Opportunities
National Landscape Association 832 Southern Building Washington, D.C. 20005	Develop a Career as a Professional Landscape Expert
New Jersey Petroleum Council 1305 Parkside Avenue Trenton, New Jersey 08638	Petroleum Industry in New Jersey
Ohio State University College of Agriculture and Home Economics 2120 Fyffe Road Columbus, Ohio 43210	A Career in Bacteriology Occupations for Persons Trained in Agriculture Careers in Agriculture
Pennsylvania Bureau of Employment Security Labor and Industry Building 7th and Forester Street Harrisburg, Pennsylvania	Job Opportunity Guide - Selected Occupations in Nursery and Turfgrass Industries
Society of Mining Engineers of AIME 345 East 47th Street New York, New York 10017	Penetrating New Frontiers with Minerals Career information on minerals engineers, geologists, mining engineers and metallurgists
Society of Petroleum Engineers of AIME 6200 North Central Expressway Dallas, Texas 75206	Careers in Petroleum Engineering
Soil Conservation Society of America 7515 N.E. Ankeny Road Ankeny, Iowa 50021	Careers in Conservation
Forestry - a Growth Career State University College of Forestry Syracuse University Syracuse, New York 13210	
U.S. Dept. of Agriculture Forest Service Washington, D.C.	A Job with the Forest Service--#843 In Your Service

U.S. Department of Agriculture Branch of Recruitment Division of Personnel Management Forest Service Washington, D.C. 20250	Challenge in Wood Research A Job with the Forest Service
U.S. Dept. of the Interior Geological Survey Information Office Washington, D.C. 20242	Astrogeology Engineering Geology Marine Geology Prospecting for Gold in the United States
U. S. Forest Service Superintendent of Documents U.S. Printing Office Washington, D.C.	Careers in Forestry Women in the Forest Service Challenge in Wood Research
West Coast Lumbermen's Assoc. Education Department 1410 S.W. Morrison Street Portland, Oregon 97205	It's a Tree Country

STUDENT

ACTIVITY

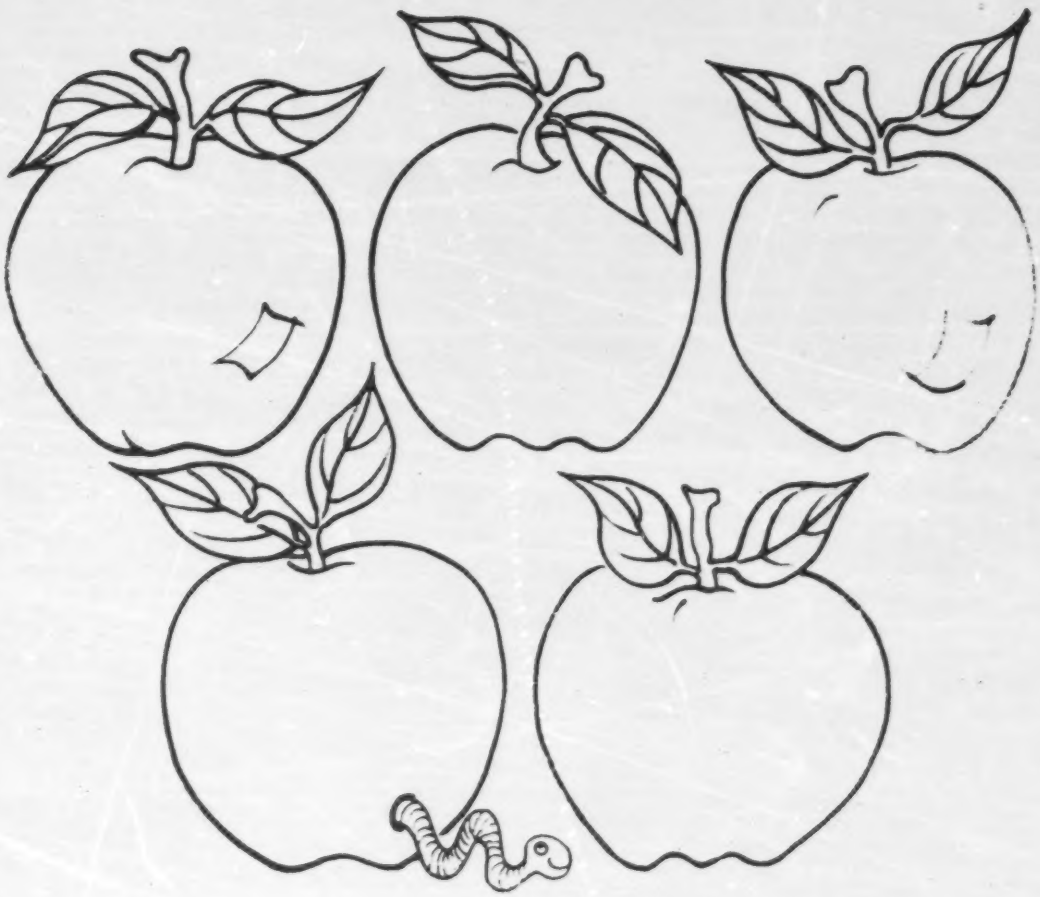
SHEETS

COLOR

CIRCLE THE THINGS THAT GO WITH TRANSPORTATION.

HOW MANY APPLES ARE THERE ON THIS PAGE?

THERE ARE ___ APPLES.



COLOR THE APPLES.

COLOR THE PICTURES.
DRAW A LINE FROM THE
PICTURE TO THE NAME.

APPLE

TREE

FARMER

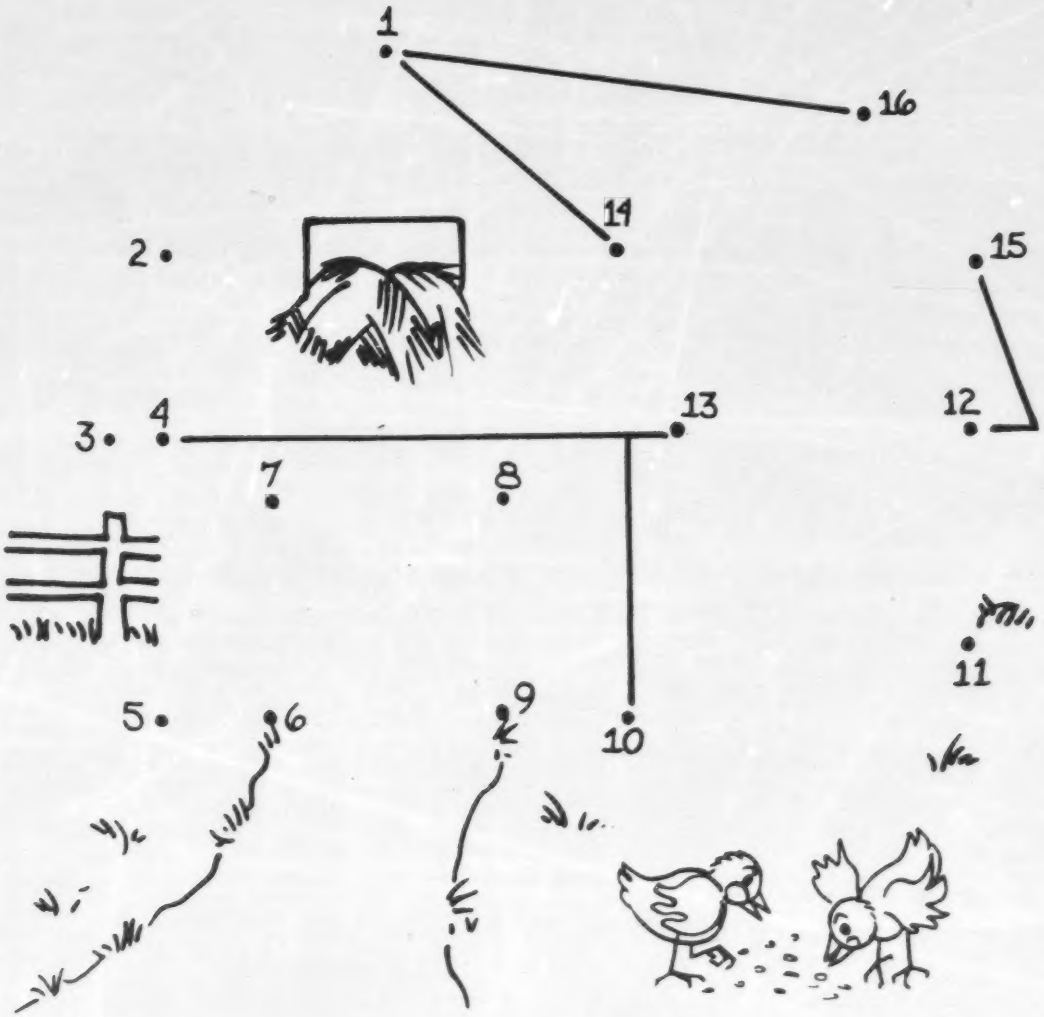
BASKET

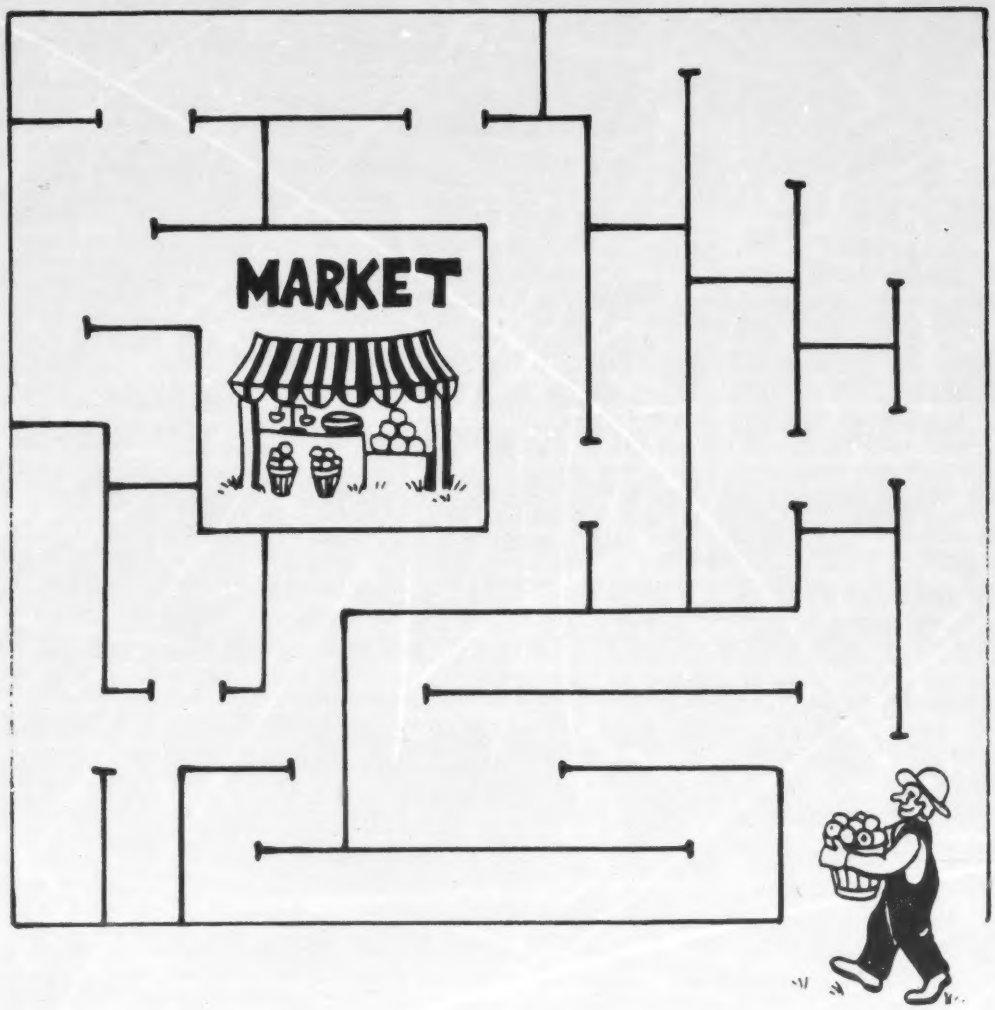
THE STOREKEEPER SELLS APPLES IN A STORE.

COLOR THIS PICTURE.

THE FARM LOOKED LIKE THIS
BEFORE THERE WERE ANY ANIMALS.
DRAW THE ANIMALS
ON THE FARM.

FOLLOW THE DOTS TO FIND THE FARMER'S BARN. COLOR THE PICTURE.





THE FARMER IS TAKING HIS TOMATOES TO MARKET.

FIND THE WAY THROUGH THE MAZE.

COLOR BY NUMBER

COLOR THE FLORIST'S DELIVERY MAN

P L A N T R U

F E P C R S M

L A P G E T L

O F L S E E D

W K E O X M R

E B H I K Y F

R D Z L C D N

FIND EACH OF THESE WORDS IN THE PUZZLE ABOVE. DRAW A RING AROUND EACH WORD:

flower *seed* *soil* *tree* *plant*

apple *leaf* *stem*